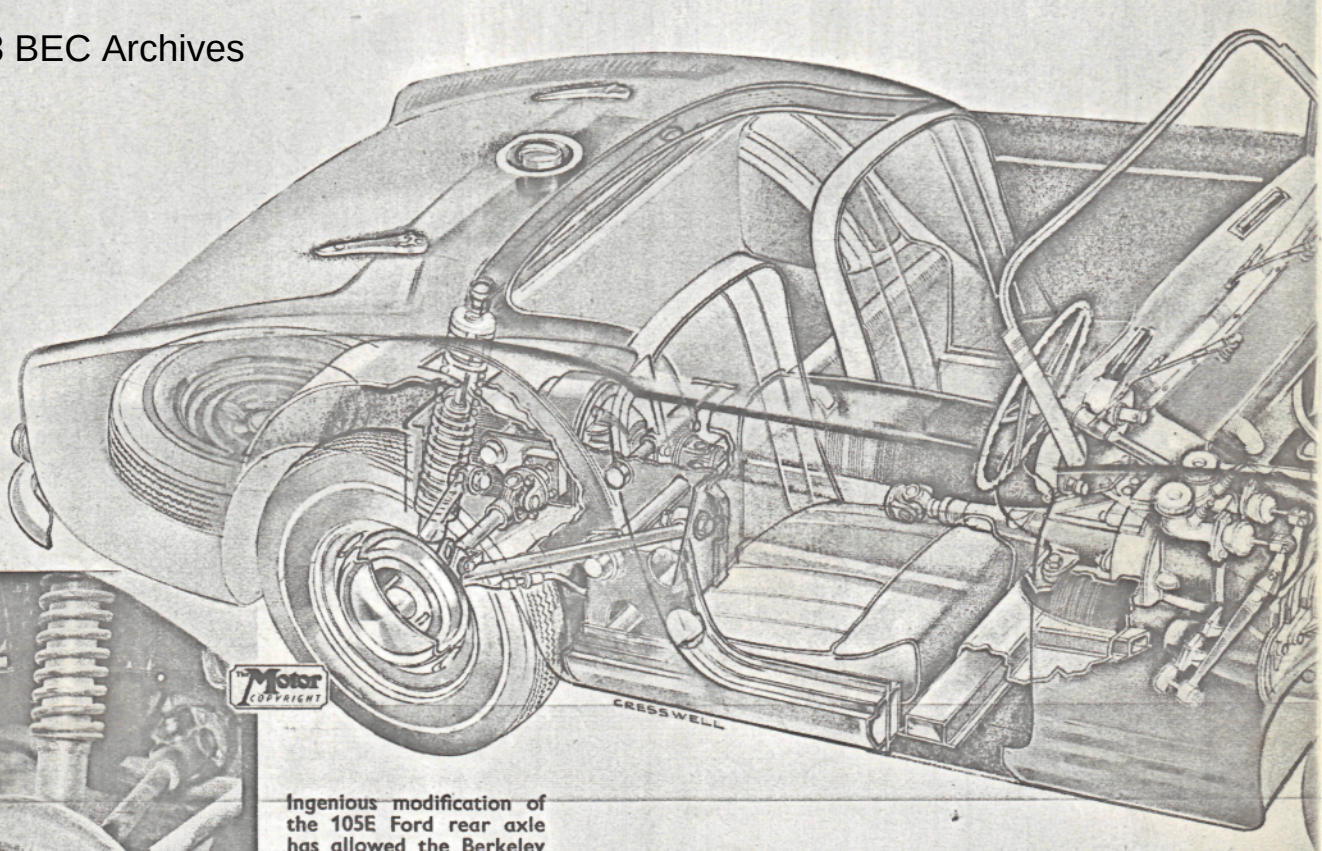


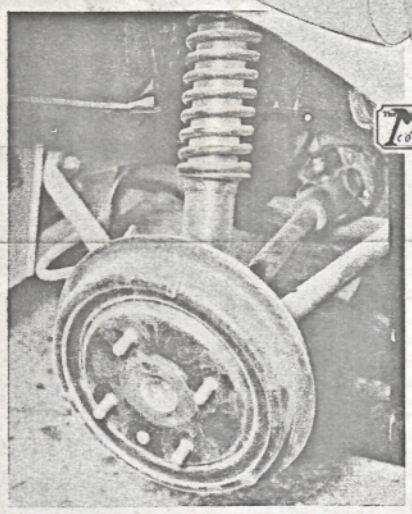
Pleasing appearance and modern design; the Ford origin of the Bandit is given away only by the wheels. Conventional Michelin tyres as apart from 'X' are fitted as standard.

1961 Cars

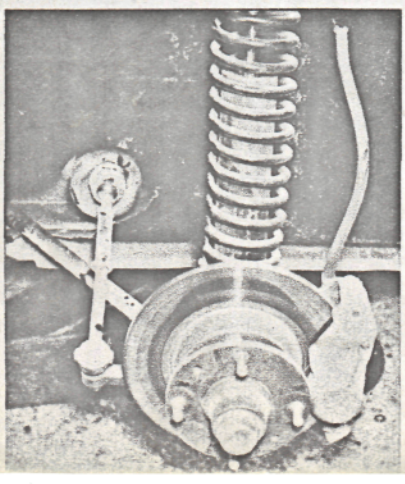
THE BERKELEY BANDIT

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Ingenious modification of the 105E Ford rear axle has allowed the Berkeley engineers to produce a swing-axle layout whilst retaining the original differential complete with its casing and hubs and drums.

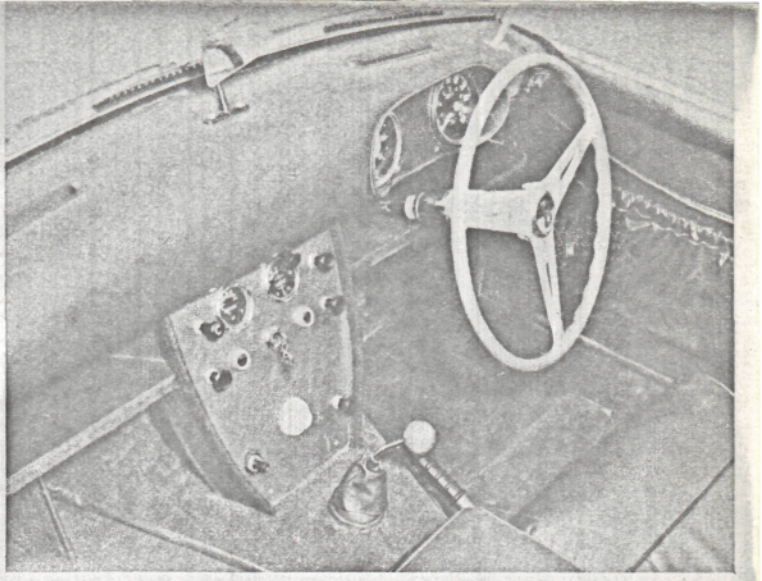


One of the world's smallest cars to use disc brakes, the Bandit has them combined here with strut suspension from the Anglia but the rack and pinion steering and lack of anti-roll bar are Berkeley features.

THE side-valve Ford 10 h.p. engine was for a long time one of the most popular units for special builders and sports car manufacturers who did not produce their own engines, and it now appears that the new 105E engine, gearbox etc. are going to be as popular as the older unit if not more so. The success of the engine when highly tuned for Formula Junior racing makes it suitable for competition minded owners whilst in standard form it can provide fast, economical touring.

Berkeley Cars have been quick to take up the 105E and have departed from their normal practice of producing sports cars powered by air-cooled two- and four-stroke engines which drive by chains and motorcycle gearboxes to the front wheels although these models are still available; they are now offering in the Bandit a four-cylinder, water-cooled power unit with conventional transmission. Refinements are all-independent suspension and Girling disc brakes at the front.

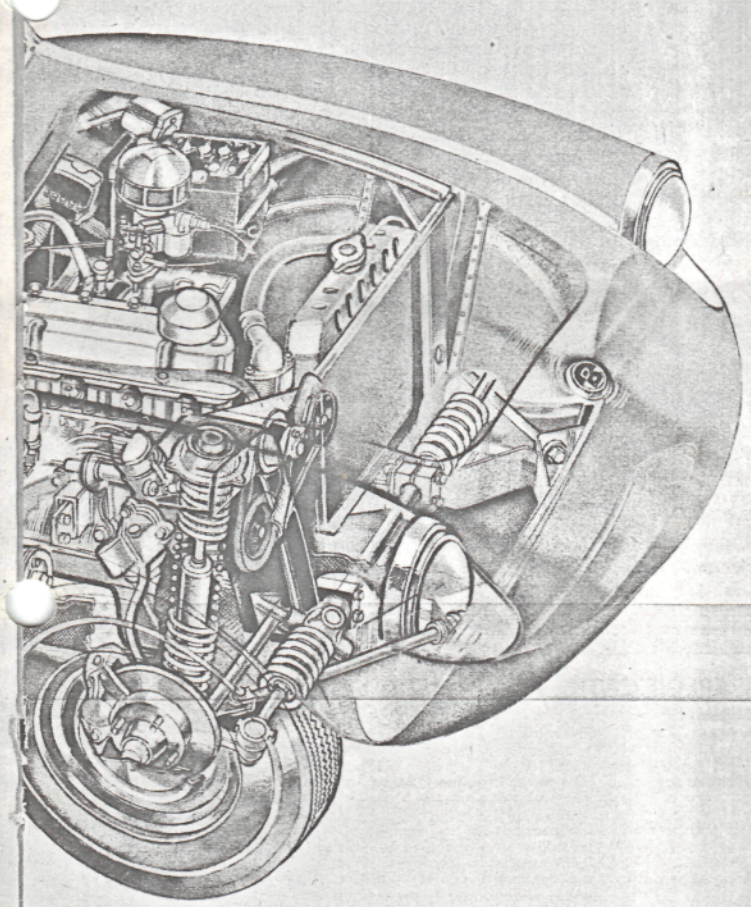
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Luxurious interior of the Berkeley would do justice to a sports car in a far higher price range. From the right is the horn button, speedometer, optional rev. counter, and console control panel. This has (*top, right*) the side and headlight switch below which is the panel light control whilst on the left is the choke control and a spare switch. Below are screenwiper, screenwasher and heater controls. A fuel gauge, ammeter, and ignition and oil pressure warning lights complete the instrumentation.

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A 1-Litre Car on More Conventional Lines Than Before Using Many Ford Parts



The chassis is also interesting and if not a complete departure from Berkeley practice is at least a deviation. John Tojeiro has been retained by the company since January this year to develop the design, which instead of being wholly glass fibre now also incorporates a fabricated steel base made up from welded 17-gauge steel. It consists of two basic side members, a scuttle, and front wheel arches, whilst at the rear are the axle and suspension mounting points. On to this is fitted a glass fibre moulding which adds further rigidity and also forms the floor, propeller shaft tunnel, and wheel arches, and gives the majority of the structural strength at the rear. The body, of the same material, fits over this and is held to the chassis with pop rivets, as is the reinforcement.

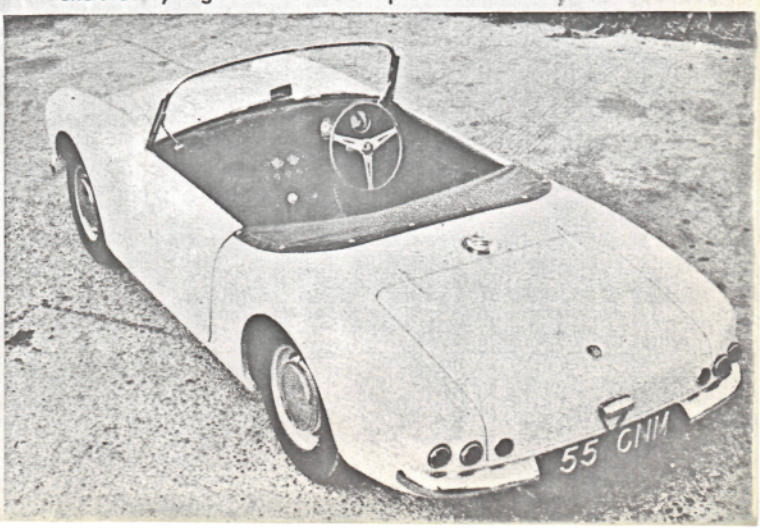
Suspension at the front uses the Macpherson strut layout where the entire strut rotates when steering lock is applied, thus obviating the need for separate king-pins. The single lower wishbone that this system calls for is Berkeley-produced, the front arm being pivoted in rubber mountings in the chassis. A further alteration from the arrangement found in the Anglia is the grafting of 8 in. diameter disc brakes on to the front hubs and the use of rack and pinion steering. At the rear a most interesting means of achieving independent suspension has been adopted. Starting with a 105E rear axle the axle tubes are removed and the differential housing then accurately faced and flanges welded on, to take half-shaft bearings and for use in mounting the unit in the chassis. The original half shafts are then also parted off and a universal joint fitted to rejoin them, the hubs and brakes being left as they are. Another flange is welded on to the differential nosepiece so that it may be firmly mounted on to the two tubular cross-members that help support it. This system gives a swing-axle layout whilst using the maximum number of standard parts. The swing arm acts as a top wishbone whilst the lower one is a wide-based tubular fabrication.

The gearbox and engine are entirely standard but considerable care has been taken to ensure that sufficient room has been left around the latter unit to allow such additions as Weber carburetters. For normal use, however, the free-revving 997 cc. oversquare unit even in completely untuned form should provide lively enough performance for most owners in a car weighing some 11 cwt.—in contrast to the 14 cwt. of the car from which it is taken—and by raising the tyre size to 5.60-13 from 5.20 the effective gear ratio has been raised so that the engine should not be "fussy" either. The radiator is another item straight from the 105E, so the underbonnet appearance will not be strange to those used to the Ford. The forward-hinging bonnet gives reasonable access and is held in place by an over-centre spring. It is opened from inside the cockpit by a pull control, and is stiffened internally by a tube bonded to the glass fibre edges. This is said to eliminate the flapping of the bonnet which is an annoying feature of some modern cars.

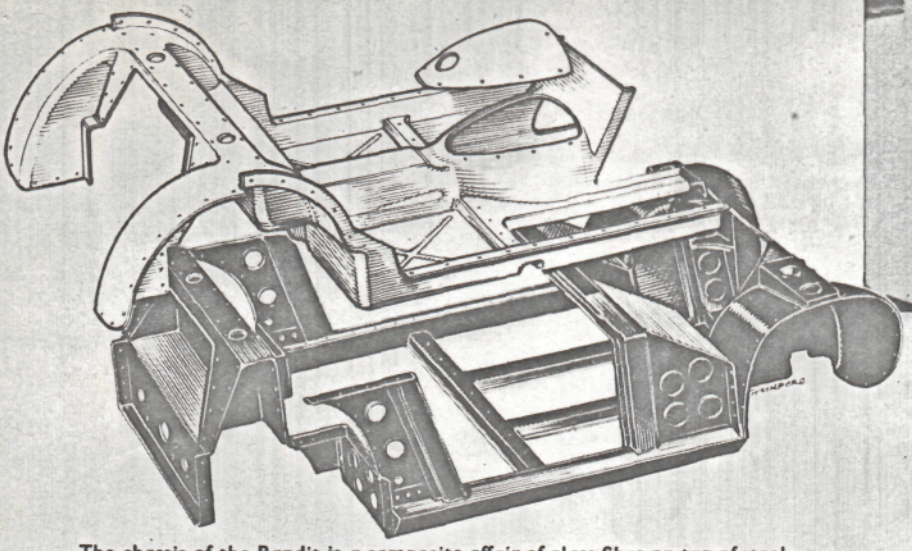
The same treatment is applied to the lid of the separate boot which is of sufficient size to hold a set of golf clubs along with several bags. The floor of the boot lifts to reveal the spare wheel which is held in place by a raised tunnel in which the silencer is found. The exhaust pipe does in fact run the complete length of the car above undertray level, passing along the transmission tunnel to the rear and thus the Berkeley has a completely flat underside.

Just forward of the boot space is the 7½-gallon fuel tank;

Separate boot, bumpers fitted close to the bodywork and a recessed fuel filler cap with drain are features of the completely new car. The luggage space behind the passengers, here covered by a tonneau, may be enclosed by a glass fibre deck in production models.



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The chassis of the Bandit is a composite affair of glass fibre on top of steel. At the rear the two holes on either side carry cross-tubes to which the differential is held in the completed car.

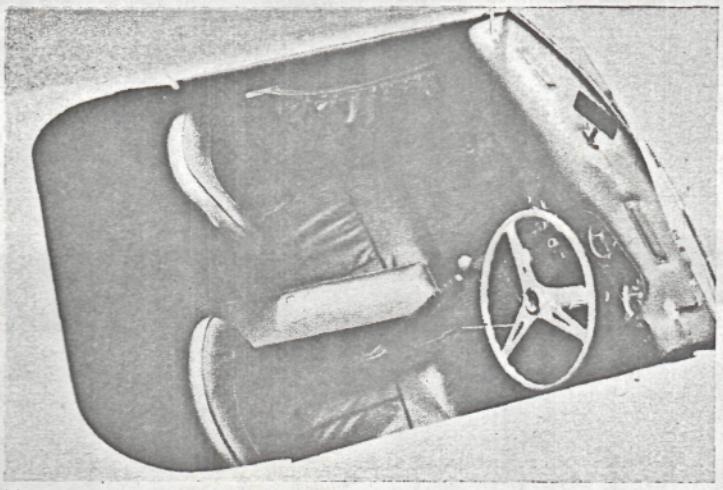


Above can be seen the boot of useful size. At the back are the filler recess drain and the fuel feed pipes which will, however, be covered in production. The covered wooden floor hinges and below it is found the spare wheel and hump in which the recessed exhaust fits.

THE BERKELEY BANDIT

instead of being taken from the base of the tank the feed to the carburetter comes by way of a tube dipping into the petrol. The filler cap is recessed into the body and opens directly into the tank which should make for rapid filling.

The prototype car had no hood when we examined it but this will be along conventional lines and removable sidescreens will be fitted. Later it is hoped to produce a hard-top and a fixed-head G.T. coupé. The mildly raked screen is held in place by self-tapping screws and two struts at either side ensure its rigidity.



Neat inside door pulls are located just above the generous map pockets in both doors. Further bits and pieces may be stowed in the box between the seats which acts also as an armrest, whilst behind them is a considerable amount of open luggage space. Small parcel shelves also exist on each side of the facia.

Inside, the car has not only a distinctive appearance but one which is reminiscent of far more expensive machinery. Carpets are used for the floor and the luggage compartment behind the occupants, and both the bucket seats are adjustable whilst between them the armrest top lifts up to reveal a space for small articles. An ashtray is located at its front. The console which carries the controls and minor instruments also serves to hide the optional re-circulating heater from view, whilst the parcel shelves on either side can take a radio tuner and later models will have a grille for a loudspeaker let into the facia. This last is formed from glass fibre and is covered with a thin layer of soft and resilient material and should provide protection in the event of accident. On the same theme, the steering has a collapsible column; it also offers 2½ in. of adjustment and although this will remain a production feature, the wood rimmed wheel seen on the prototype will be an extra. It is mounted in the car inclined slightly towards the offside so that the driver does not sit symmetrically.

Very wide front-hinged doors are opened by pulls inside and allow easy ingress and egress particularly on the passenger's side, and the whole car is in fact slightly longer than contemporaries of similar capacity. At the front the downward-facing air intake is a recognition point whilst at the rear the tail is distinctively slim in side view.

Price has not at this stage been finally decided. The makers are Berkeley Cars Ltd., Biggleswade, Beds.

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BERKELEY BANDIT SPECIFICATION

Engine

Cylinders ...	4 in line with hollow cast-iron 3-bearing crankshaft.
Bore and stroke	80.96 mm. × 48.41 mm. (3.187 in. × 1.906 in.).
Cubic capacity ...	997 cc. (60.84 cu. in.)
Piston area ...	31.92 sq. in.
Compression ratio	8.9/1.
Valvegear ...	In line, vertical o.h.v. operated by pushrods and rockers from chain-driven camshaft.
Carburation ...	Solex 30 ZIC2 downdraught carburetter, fed by mechanical pump, from 7½-gallon rear-mounted tank.
Ignition	12-volt coil, with centrifugal and vacuum timing control, 14 mm. Champion N5 sparking plugs.
Lubrication ...	Rotor pump, full flow filter (½ pint capacity), 4-pint sump.
Cooling	Water cooling with pump thermostat and pressurized radiator; 10¼-pint water capacity plus 1 pint in optional heater.
Electrical system	12-volt 38 amp. hour battery charged by 20-amp dynamo.
Maximum power	39 net (41 gross) b.h.p. at 5,000 r.p.m., equivalent to 102 lb./sq. in. b.m.e.p. at 1,590 ft./min. piston speed and 1.22 b.h.p. per sq. in. of piston area.
Maximum torque	52.85 net (55 gross) lb. ft. at 2,700 r.p.m., equivalent to 131 lb./sq. in. b.m.e.p. at 860 ft./min. piston speed.

Transmission

Clutch	Ford 7½ in. s.d.p. with hydraulic actuation.
Gearbox	4-speed with direct top gear and syncromesh on upper three ratios.
Overall ratios ...	4.125; 5.286; 9.884; 16.987; rev. 22.292
Propeller shaft ...	Single piece open, spline coupling combined with gearbox rear extension.
Final drive ...	8/33 hypoid bevel mounted on frame.

Chassis

Brakes	Hydraulic, disc front, drum rear.
Brake dimensions	Front discs 8 in. dia.; rear drums 8 in. dia. × 1¼ in. wide.
Brake areas ...	60.4 sq. in. of lining (22.0 sq. in. front plus 38.4 sq. in. rear) working on 194.8 sq. in. rubbed area of disc/drums.
Front suspension	Independent by coil springs and Macpherson struts with lower wishbones and hydraulic shock absorbers incorporated in suspension struts.
Rear suspension...	Independent by swing axle and coil spring damper units, wide based lower wishbones.
Wheels and tyres	4-stud bolt-on steel wheels and 5.60 × 13 tubed tyres.
Steering	Rack and pinion.

Dimensions

Length	Overall 12 ft. 1 in.; wheelbase 6 ft. 10 in.
Width	Overall 4 ft. 6 in.; track 3 ft. 10 in. at front and 3 ft. 10 in. at rear.
Height	To top of screen 3 ft. 8 in.; ground clearance 6 in.
Turning circle ...	29 ft
Kerb weight ...	11 cwt. approx. (without fuel but with oil, water, tools, spare wheel, etc.).

Effective Gearing

Top gear ratio ...	16.3 m.p.h. at 1,000 r.p.m. and 51.34 m.p.h. at 1,000 ft./min. piston speed.
Maximum torque	2,700 r.p.m. corresponds to approx. 44.2 m.p.h. in top gear.
Maximum power	5,000 r.p.m. corresponds to approx. 81.76 m.p.h. in top gear.
Probable top gear pulling power...	228 lb./ton approx. (computed by *The Motor* from manufacturers' figures for torque, gear ratio and kerb weight, with allowances for 3½ cwt. load, 10% losses and 60 lb./ton drag).

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